Technology Transfer Brief

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First-in-Class VDP Therapy Targeting the PKM2 Metabolic Axis for Potent Tumor Regression and Metastasis Inhibition

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Content

01 PKM2-Dependent Programs in Cancer Progression

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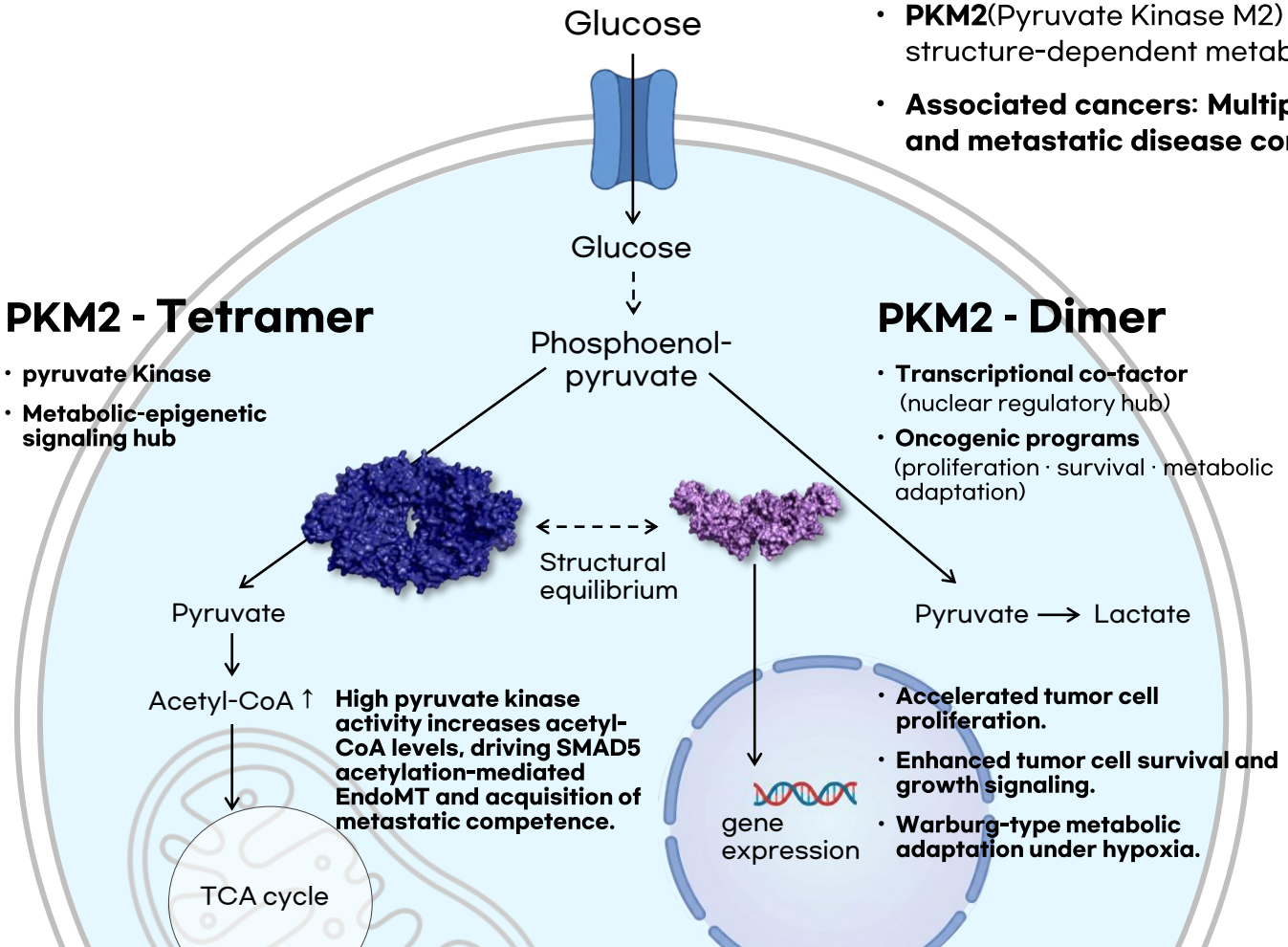
- ✓ **Role of PKM2 :** A structure-dependent signaling node coordinating transcriptional and metabolic-epigenetic programs in cancer.
- ✓ **Anticancer Strategy :** Disruption of **PKM2 structural signaling** suppresses tumor growth and metastatic competence.

- **PKM2**(Pyruvate Kinase M2) : A pyruvate kinase isoform expressed in proliferating cells that exerts structure-dependent metabolic and transcriptional regulatory functions.
- **Associated cancers: Multiple solid tumors and hematologic malignancies, particularly in advanced and metastatic disease contexts.**



Tumor cell development Control Strategy

① Proliferation Axis

- **Strategy:** Suppression of oncogenic cell-cycle transcription.
- **Outcome:** Controlled tumor cell cycle progression and reduced proliferative drive.

② Survival & Growth Axis

- **Strategy:** Attenuation of pro-survival signaling dependency.
- **Outcome:** Reduced tumor cell survival advantage and growth signaling resilience.

③ Metabolic Adaptation Axis

- **Strategy:** Limitation of hypoxia-driven metabolic plasticity.
- **Outcome:** Restricted Warburg-type metabolic adaptation under hypoxic stress.

02 Technology Overview

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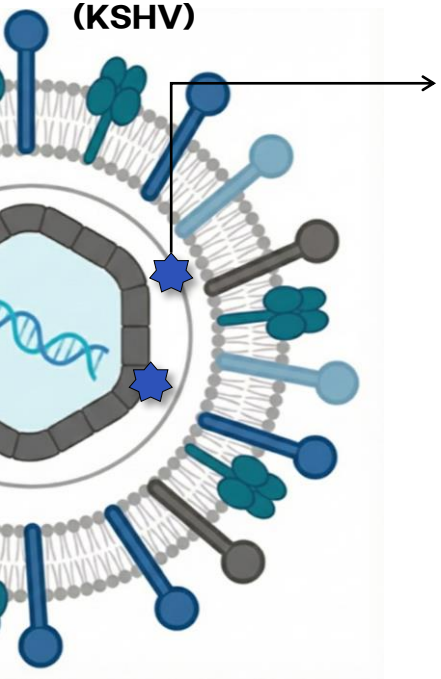
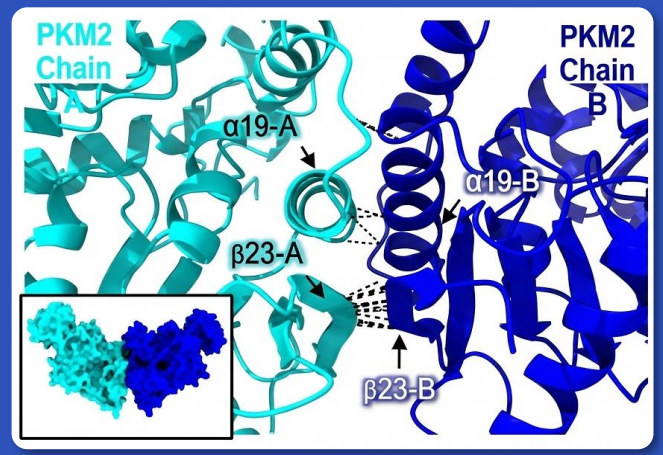
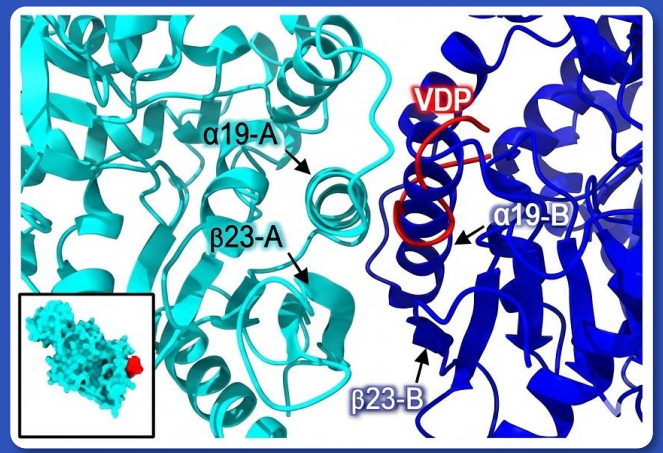
Kaposi's sarcoma-associated herpesvirus (KSHV)



- vIRF3
- Glycoproteins
- Envelope
- Tegument
- Viral genome
- Capsid

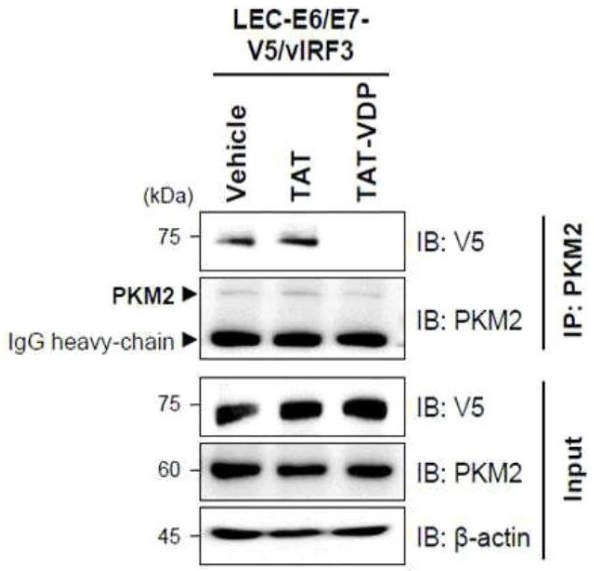
- VDP targets a defined PKM2 binding interface critical for vIRF3 association.
- Structure-guided binding enables high-affinity, competitive PPI blockade.





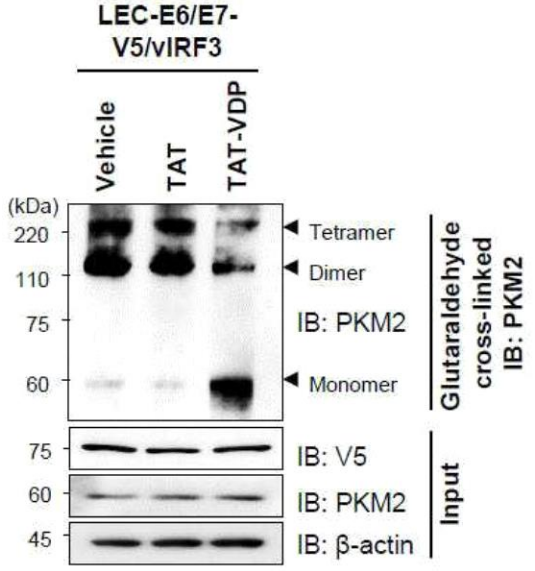
- ✓ **Unlocking a New Frontier in Solid Tumor Treatment : Highly Selective PKM2 Modulation via vIRF3-derived PPI Inhibitors.**
- ✓ **VDP halts cancer metastasis by precisely disrupting the vIRF3-PKM2 oncogenic metabolic axis.**

Competitive Binding Block



TAT-VDP potently blocks the vIRF3-PKM2 PPI interface

Prevention of Tetramerization



VDP prevents PKM2 tetramerization, halting the metabolic surge that drives metastasis

03 Key Features & Advantages

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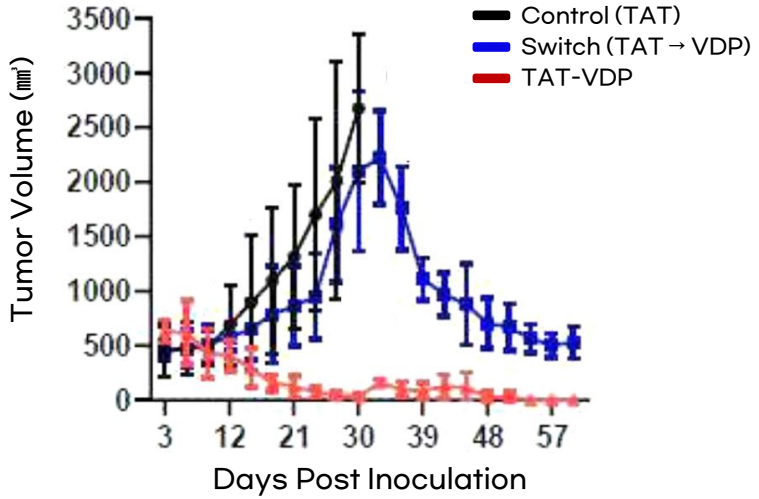
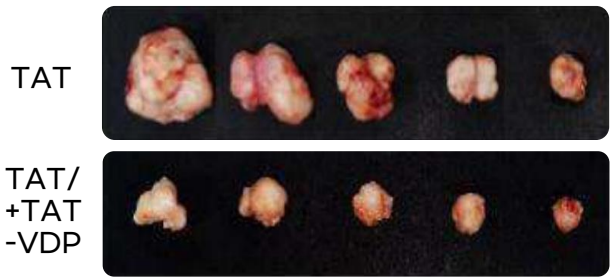
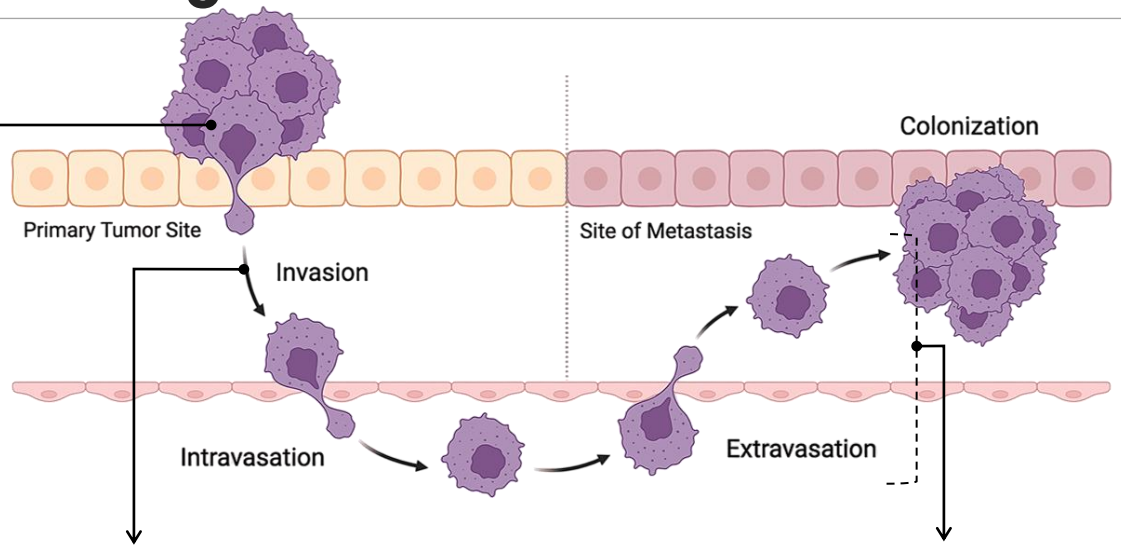
Tumor Regression

- **VDP** : Potent tumor **regression** and **growth inhibition**.
- Verified safety with no significant weight loss.



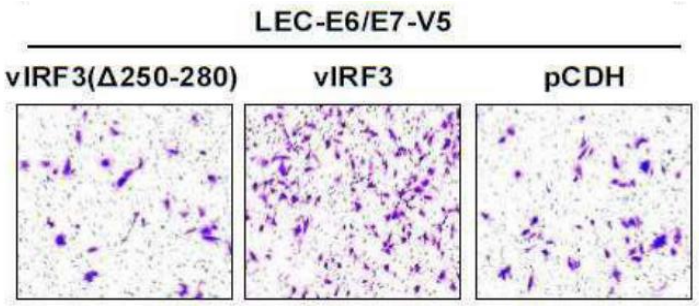




Anti-Migration

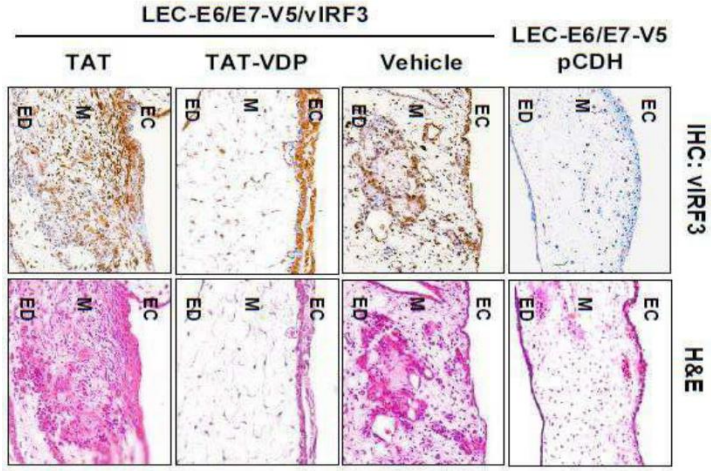
Potent Inhibition of Cancer Cell Motility

(VDP neutralizes the locomotive capacity of cancer cells by disrupting oncogenic metabolic signaling, effectively preventing cellular dissemination at the source.)



Anti-Invasion

Effective Blockade of Tissue Invasion and Penetration



04 Strategic Business Opportunities

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- ✓ **Business Vision :** A first-in-class precision oncology solution targeting the vIRF3-PKM2 metabolic axis to fundamentally block cancer metastasis.
- ✓ **Engagement Model :** Open to global technology licensing, strategic R&D partnerships, and co-development for clinical trials.

Collaborative development opportunities

❶ Peptide Platform Optimization

- Lead optimization for enhanced metabolic stability and expansion into Peptide-Drug Conjugates (PDCs).
- **Partners** : Global Pharma, Peptide synthesis & drug delivery specialists, Biotech companies focused on PDCs.

❷ Preclinical & PDX Validation

- Validation in Patient-Derived Xenograft (PDX) models and comprehensive PK/PD/Toxicology profiling.
- **Partners** : CROs, General hospitals & oncology research centers.

❸ Companion Diagnostics (CDx)

- Development of Acetyl-CoA and PKM2-based screening protocols for personalized precision medicine.
- **Partners** : IVD manufacturers, Precision medicine & biomarker analysis labs.

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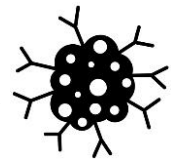
Collaborative R&D

Preclinical co-development

IP license (Option/Exclusive)

Orphan Drugs
(Metabolically Dependent Tumors)

- Targeting orphan cancers with PKM2-dependent metabolic vulnerability
- Initial clinical focus: Kaposi's sarcoma



Major Oncology

- Broad application to PKM2-overexpressing tumors including lung, breast, and colon cancers (**Combination Therapy**)
- lung, breast, and colon cancers

Intellectual Property

- Title : VIRF3-DERIVED PEPTIDE AND USE THEREOF FOR PREVENTING OR TREATING CANCER
- Patent : US 18/857042, KR 10-2837660, PCT/KR2023/006165

CONTACT US

For inquiries regarding technology licensing, collaborative R&D, or partnership opportunities, please contact :

- Technology Transfer Agency : **IBU Inc.**
- Email : **kimth@ibubiz.kr**

Partnering to unlock new business opportunities through innovation.

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